DOCUMENT RESUME

ED 317 655 UD 027 375

AUTHOR Rowan, Brian; Guthrie, Larry F.
TITLE The Quality of Chapter 1 Instruction: Results from a Study of 24 Schools.
INSTITUTION Far West Lab. for Educational Research and Development, San Francisco, Calif.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE 90
CONTRACT 400-85-1015
NOTE 45p.
PUB TYPE Reports - Evaluative/Feasibility (142) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Classroom Techniques; *Compensatory Education; Curriculum Problems; *Educationally Disadvantaged; Educational Quality; Elementary Secondary Education; *Instructional Effectiveness; *Instructional Improvement; Outcomes of Education; *Program Design; Program Evaluation
IDENTIFIERS *Education Consolidation Improvement Act Chapter 1

ABSTRACT

This document comprises a study of compensatory education programs at the classroom level in 24 schools in 6 states. funded under Chapter 1 of the Education Consolidation and Improvement Act. The following issues were investigated: (1) instructional effectiveness; (2) the effect of local service delivery design on instructional quality; and (3) the extent and nature of coordination between Chapter 1 and regular instructional programs. The study sample comprised 17 elementary schools, 3 intermediate schools, and 4 high schools, of which 15 schools were located in urban areas, 4 in suburban areas, and 5 in rural areas in diverse geographic regions. Data were gathered from interviews with school staff and through over 2,000 hours of classroom observation. In general, program design was found to have very little effect on the total amount of time a student spent receiving instruction, but simply redistributed a fixed amount of instructional time across programs. The result was small gains for participants when compared to non-participants, despite the advantage of small class size. The wide variety of local program characteristics suggests the following implications for improvement: (1) improvement will occur on a site-by-site basis; (2) the amount of direct instruction or the nature of the curriculum is more likely to affect instructional quality than service delivery design; (3) add-on services would increase the amount of instructional time; (4) curriculum should be closely coordinated between Chapter 1 and regular instruction; (5) students should be exposed to higher-order thinking skills at all levels; and (6) secondary school programs should move away from self-paced instructional formats that rely on independent seatwork. Four tables of statistical data are included. A list of 33 references is appended. (FMW)

016189

3/30/90 UD

ED317655

THE QUALITY OF CHAPTER 1 INSTRUCTION:

RESULTS FROM A STUDY OF 24 SCHOOLS

Brian Rowan
Michigan State University

Larry F. Guthrie
Far West Laboratory for Educational
Research and Development

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Tom Ross
Far West Lab. for Educ. Research and Dev.

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

UD 027 375

FAR WEST LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT
1855 FOLSOM STREET · SAN FRANCISCO, CALIFORNIA 94103 · (415) 565-3000

Work on this paper was supported by the Office of Educational Research and Improvement, Department of Education, under Contract No. 400-85-1015 to the Far West Laboratory for Educational Research and Development, San Francisco, California. The contents of this paper do not necessarily reflect the position or policies of the Department of Education. The authors thank Richard Allington, Lorin Anderson, Steve Bossert, Annegret Harnischfeger, Ginny Lee, and Jane Stallings for directing research at the various sites in this study.

THE QUALITY OF CHAPTER 1 INSTRUCTION:

RESULTS FROM A STUDY OF 24 SCHOOLS

Brian Rowan
Michigan State University

Larry F. Guthrie
Far West Laboratory for Educational
Research and Development

THE QUALITY OF CHAPTER 1 INSTRUCTION: RESULTS FROM A STUDY OF 24 SCHOOLS

Chapter 1 of the Education Consolidation and Improvement Act (ECIA) is the nation's largest federal education program, providing over 3 billion dollars of aid to local school districts for support of compensatory education programs. Designed to increase educational opportunities and outcomes in school districts serving high proportions of low income students, the Chapter 1 program signals the nation's commitment to improving education for disadvantaged students. Unfortunately, after two decades of continuous operation, evaluation research demonstrates that the program results in discouragingly small achievement gains for participating students.

In 1983, Congress mandated that a National Assessment of Chapter 1 be conducted in order to consider the current operations of the program and its prospects for improvement. The Office of Educational Research and Improvement (OERI) of the United States Department of Education conducted this National Assessment and is releasing three reports to Congress (Kennedy, Jung, and Orland, 1986; Kennedy, Birman, and Demaline, 1987; Birman et al., 1987). These reports, based on secondary analyses of existing data, as well as the results of original research, offer an overview of program operations at various levels of the educational system. They also provide educators and policymakers with an unprecedented opportunity to reassess and improve upon current methods of delivering compensatory education to disadvantaged students.

This paper reports the results of a field study undertaken as part of the National Assessment. Among the original research studies sponsored by this initiative, the study discussed here was the only one that investigated the operations of the Chapter 1 program at the point of service delivery, in the schools and classrooms where participating students received the instructional services purchased by Chapter 1 funds. A major purpose of the research was to assess the "size, scope, and quality" of local Chapter 1 instruction and to consider strategies for improving the program's capacity to "meet the special educational needs of the children being served" (see Section 556 (b) (3) of Chapter 1, ECIA).

The study focused on three issues. First, it gathered descriptive data on the characteristics of Chapter 1 instruction and compared these to the features of an effective instructional program as found in previous research. The purpose was to provide information on the quality of Chapter 1 instruction in local schools. Second, the study investigated whether variations in instructional quality could be accounted for by local design decisions, particularly decisions about the implementation of different models of service delivery (e.g., pullout, in-class, replacement, or add-on models). Finally, the study analyzed the extent and nature of coordination between Chapter 1 and regular instructional programs. The overall purpose of the study was to gather descriptive data on the design and operations of the program at the point of service delivery and to formulate strategies for improving Chapter 1 instruction.

Sample and Research Design

The study was conducted in six states in diverse geographic

regions of the country. Twenty-four schools were selected using a purposive sampling plan that took into account the following facts: (1) since approximately 90% of the school districts in the United States receive Chapter 1 funds (Kennedy, Jung, and Orland, 1986), the sample was chosen to include schools in large and small districts in urban, suburban, and rural communities; (2) since districts are more likely to provide Chapter 1 services in elementary than in secondary schools (Advanced Technology, 1983), the sample included more elementary than secondary schools; and (3) since Chapter 1 regulations permit schools to use a variety of service delivery models (e.g., pullout, in-class, replacement, add-on), the sample was chosen to include schools implementing the full range of service delivery models.

The final sample included 17 elementary schools, 3 intermediate schools, and 4 high schools. Fifteen schools were located in urban areas, 4 in suburban areas, and 5 in rural areas. District enrollments ranged from approximately 900 students to over 430,000. Most of the schools offered Chapter 1 instruction in both reading and math, although this was truer of the elementary than the secondary schools in the sample. Moreover, most of the schools used more than one service delivery model to deliver Chapter 1 instruction (e.g., pullout was used in math, in-class for reading).

At each school in the sample, teams of three to four researchers spent a month conducting interviews with school staff and observing the instruction received by students. Over the course of the study more than 2000 hours of academic instruction were observed, and interviews were conducted with over 400 teachers, administrators and students. These procedures yielded descriptive data on patterns of Chapter 1 service delivery in schools (e.g., the delivery models in

use, service schedules, and staffing patterns) and data on the characteristics of the instruction received by Chapter 1 students.

The major task of the study was the observation of students' instruction over the course of an entire school day. Only students who participated in the Chapter 1 program were observed. At each school, eight students were observed for an entire school day, and two students were observed for an entire school week. During these observations, researchers used a coding scheme that recorded the amount of time students spent receiving instruction in various subjects, the instructional formats that students engaged in during lessons, the sizes of the instructional groups in which students participated, and the instructors from whom students received instruction. Observers also kept a running narrative record that focused on the materials being used for instruction, the nature and skill levels of instructional tasks on which students worked, the nature of verbal interactions between teachers and students, and the engagement and success rates of students during instruction. Thus, both quantitative and qualitative data on students' instructional experiences were collected over the course of a school day (or week).

In addition to observations of Chapter 1 students, interviews were conducted at each school with classroom teachers, school administrators, and Chapter 1 staff (resource teachers, aides, and coordinators). The data from these interviews were used to assemble descriptions of the service delivery model(s) in use at a school, the scheduled frequency of Chapter 1 and other special instructional services, and a number of other topics not germane to this paper but

discussed in the final report of the research project (Rowan, Guthrie, Lee, and Guthrie, 1986).

The resulting data set reflected the multilevel concerns of the research project. Interview data provided information on the design characteristics of Chapter 1 projects in the 17 elementary and 7 secondary schools included in the study. And within these schools, student observations provided information on the characteristics of instruction received by Chapter 1 students. In the final analysis, the study obtained data on 241 Chapter 1 students (166 in grades 2 and 4; 75 in grades 8 and 10) and observed a total of 2062 hours of academic instruction (1357 hours in grades 2 and 4; 705 hours in grades 8 and 10).

Research and Policy Issues Addressed by the Data

The data were used to provide information on a number of questions about the design and implementation of Chapter 1 instructional programs in local settings. This section of the paper reviews these questions and shows how they are related to a number of research and policy issues in the area of compensatory education.

Quality of Instruction in Chapter 1 Projects

The National Assessment of Chapter 1 was designed to gather information on the quality of instruction received by compensatory education students. In order to meet this goal, this study needed to develop an approach to gathering data that differed from much past evaluation research, particularly the large-scale outcomes studies that often have been used to evaluate the effectiveness of the Title I and Chapter 1 programs. These studies often take a "macro" approach to the evaluation of federal education programs. Researchers assume

that all students who participate in a federal program receive comparable instructional treatments, so that evaluations of program effectiveness can be accomplished by inspecting highly aggregated data on instructional outcomes. Several observers have noted the shortcomings of this approach and pointed out that the instructional "treatments" received by compensatory education students vary markedly from school to school (Averch, Carroll, Donaldson, Keisling, and Pincus, 1972; Wiley, 1979; Carter, 1984).

Mindful of this criticism, other researchers have advocated a "micro" approach to the evaluation of federal education programs. In this approach, the school-to-school variation in instructional programs is recognized and described in detail. This is the general approach taken in this study. Data were collected on the characteristics of instruction provided to Chapter 1 students at schools in the sample, and these data were compared to the features of an effective instructional program identified by past educational research. The major purpose of the analysis was to examine the processes within schools that lead to instructional outcomes and to describe the extent of variation in quality of instruction in a variety of local settings.

The definition of "quality" instruction used in this study was derived from past research on teaching and instruction. On the basis of this literature, the following variables were identified as components of an effective instructional program:

Time. Educational research has shown a consistent relationship between the amount of time students spend on academic tasks and their subsequent performance on achievement tests (Walberg and Frederick, 1983). The relationship of time to student achievement is greater in

studies that measured engaged time rather than allocated time. Engaged time is that fraction of allocated time that students spend actively working on academic tasks (Fisher, Berliner, Filby, Marliave, Cahen, and Dishaw, 1980). The present study recorded the amount of time students in the sample spent in instruction in various subjects in both the regular and Chapter 1 programs. In addition, qualitative data on student engagement and success were gathered. These data were used to assess the extent to which Chapter 1 instruction contributed to student's academic learning time.

Class size. Past research also indicates that student achievement is increased when learning activities take place in smaller groups (Cahen, Filby, McCutcheon, and Kyle, 1983). For example, a meta-analysis of studies of class size by Glass, Cahen, Smith, and Filby (1982) presented a curve that traced the effects of reductions in group size on learning. This curve suggested that reductions in class size had minimal effects until instructional groups reached a size of about 10 students. Below this number, reductions in class size tended to have larger effects. This same meta-analysis also suggested that reductions in class size had larger effects when the reduction occurred for longer periods of time. For example, Glass et al. (1982) arbitrarily divided studies into those that reduced group size for more or less than 100 hours and found that reductions lasting longer than 100 hours had larger effects than those lasting less than 100 hours. The present study recorded the sizes of the instructional groups in which students in the sample participated, both in the Chapter 1 program and in the regular program. These data were then used to examine whether changes in student grouping arrangements could

be expected to contribute to increased achievement of Chapter 1 students.

Instructional formats. A third component of instructional quality consists of the formats used by teachers during lessons. A number of researchers have sought to identify instructional formats that result in effective instruction for low-income/low-achieving students (for a review, see Brophy and Good, 1986). In the 1970s, researchers held out high hopes for individualized instructional formats, but the Instructional Dimensions Study (Cooley and Leinhardt, 1980), sponsored by the National Institute of Education (NIE) during its last evaluation of compensatory education (NIE, 1976), provided little support for the effectiveness of this approach, at least as measured in the study. Alternatively, much more empirical support has been found for an approach which has come to be known as "direct instruction" (Brophy and Evertson, 1974; Good, 1978; Stallings and Kaskowitz, 1974; for a review, see Rosenshine, 1983). In this approach, teachers actively present lessons and provide students with guided practice in new academic skills. This approach contrasts sharply with the frequent use of independent seatwork as an instructional format, a feature common to many individualized programs. Although good instruction always includes some independent practice, and this kind of practice usually occurs during seatwork, recent research suggests that an over-reliance on seatwork, especially its use to present new skills, is less effective than more "direct" instructional formats (Anderson, Brubaker, Alleman-Brooks, and Duffy, 1985; Brophy and Good, 1986). On the basis of these findings, the present study recorded the amount of time students spent in

independent seatwork as opposed to more "direct" instructional formats such as lecture/recitation activities.

Curriculum content. Discussions of instructional quality must consider not only how students are taught, but also what they are taught (Carter, 1984; Cooley and Leinhardt, 1980). Increasingly, thoughtful observers are beginning to question the curriculum content of compensatory education programs (Botel, 1978; Allington, Steutzel, Shake, and Lamarche, in press). Past research suggests that students in compensatory education spend much time working on "lower order" academic skills. For example, students practice phonics skills but do little reading of connected text; or students practice basic arithmetic skills but do not apply these skills in problem-solving situations. Recent research also suggests that the "direct" instruction formats that many educational researchers advocate for use with low-income/low-achieving students may be of limited utility for instruction in higher order thinking skills (Peterson, 1986). To address this issue, this study recorded the skills to which students in the sample were exposed, both in the Chapter 1 program and the regular program: it assessed the extent to which Chapter 1 instruction was focused on low-level basic skills, such as phonics drills and arithmetic facts, or whether Chapter 1 students had an opportunity to engage in higher-order skills, such as the reading of connected text and the completion of problem-solving exercises.

The Design and Implementation of Instructional Services

The study was not simply interested in charting the characteristics of Chapter 1 and regular instruction in a diverse sample of schools. An additional purpose was to assess the extent to which

instructional quality varied as a result of the Chapter 1 service delivery model used by schools. In particular, the study sought to describe the types of project designs used in schools and to assess the effects of these designs on the scope and quality of instruction received by Chapter 1 students.

Questions about local design practices often focus on a specific issue, such as the relative merits of implementing pullout vs. alternative models of service delivery. Early research on this question found that almost all Title I projects used pullout models (Glass and Smith, 1977), but later research discovered a slight trend away from this tendency, with school districts increasingly replacing pullouts with alternatives like in-class and replacement designs (Advanced Technology, 1983). This study was particularly interested in whether the implementation of these different service delivery models had consequences for the scope and quality of instruction Chapter 1 students received. Evidence on this point could help policymakers and practitioners better understand the instructional consequences of local choices about service delivery models.

Much early research suggested that the use of pullout models was detrimental to instruction. Glass and Smith (1977, p. 5), for example, argued that "research does not support the wisdom of instruction under conditions like those that prevail in pullout programs." Kimbrough and Hill (1981) expanded on this critique when they argued that pullouts disrupted ongoing lessons in regular classrooms and caused students to miss some portion of their regular instruction. Other research suggested that the implementation of pullout designs can result in a lack of coordination between compensatory and regular instructional programs, and that this can adversely affect student

success in regular classroom lessons (Johnston, Allington, and Afflerbach, 1985).

More recent research has presented a more balanced analysis of service delivery models. Archambault (1986), for example, reviewed a number of studies of the effects of pullout models on instruction and found that study results were inconsistent. He concluded that choice of a particular delivery model was less important to the quality and effectiveness of Chapter 1 instruction than a number of other factors, including curriculum, staffing, grouping, and teaching practices.

Past evaluations of compensatory education suggest further considerations about local design practices. Carter (1984), for example, noted the wide variability in project designs in compensatory education. This lack of uniformity in design results in part from the weak constraints placed on schools in federal education laws and policies. As Gaffney (1986) pointed out, Chapter 1 legislation and federal education statutes give local school systems wide latitude in the design of local Chapter 1 projects. In addition to allowing schools to implement a number of different service delivery models (e.g., pullout, in-class, replacement, add-on), federal statutes prohibit the federal government from exercising any direct supervision or control over the curriculum, program of instruction, administration, or personnel of any school system (Gaffney, 1986). Given these circumstances, it would not be surprising to find that schools operating the same nominal service delivery model have few other instructional design features in common.

Given the freedom districts have in designing local projects, there is a need to investigate the extent to which schools uniformly implement various service delivery models and to examine service

delivery models in the context of other instructional design features. Accordingly, the sample for this study included schools that used a variety of service delivery models; but these models were nested within sites that also contained a variety of other design features, including a variety of curriculum, staffing, scheduling, and management practices. This sampling strategy allowed an investigation of the extent to which projects using the same nominal service delivery model (e.g., pullout) were similar in other design features. It also allowed an analysis of the extent to which overall project design features affected the scope and quality of instruction available to Chapter 1 students. The purpose was to provide practitioners and policymakers with a better understanding of the instructional implications of design choices.

Chapter 1 and the Regular Instructional Program

A final set of questions concerned the relationship between Chapter 1 and regular instruction. Obviously, student achievement ultimately results from the combination of instruction in both of these programs, and most educators view compensatory education as a supplement to a student's regular program of instruction. Thus, an important topic of concern in this study was how Chapter 1 instruction fits within a student's overall instructional program.

The last major evaluation of compensatory education (NIE, 1976) contained a number of findings relevant to this issue. A basic picture that emerged from this evaluation was that Title I instruction often substituted for, rather than added to, students' regular instructional programs. For example, it was found that the average compensatory education student spent between 4 and 5 and 1/2 hours a

week in compensatory instruction, almost always after having been "pulled out" of the regular classroom. During Title I time, about 40% of participating students missed instruction in a variety of regular classroom subjects.

Policy analysts have discussed these findings in conjunction with criticisms of current program practices. Brown (1982) and Walberg (1984), for example, argued that compensatory education programs are not truly compensatory because they rarely add more instructional time to a student's instructional day. Almost all projects offer instruction during the regular school calendar, and participating students often miss some portion of regular classroom instruction. A closely related criticism was offered by Kimbrough and Hill (1981), who argued that the widespread use of pullout models disrupted the instruction not only of pulled-out students, but also of students who remained in the classroom.

Contrast these criticisms, offered by policy researchers and academics, with the views of teachers. In 1978, the NIE sponsored a conference in which teachers were invited to discuss research on compensatory education. By and large, teachers were not much concerned with the fact that compensatory instruction caused some students to miss a portion of the regular curriculum. Some argued that mastery of basic reading and mathematics skills was paramount. Nevertheless, teachers at the conference did recognize that coordination problems existed, especially when pullout models were in use, and many teachers reported that they "saved" time for instruction in important subjects until it could be offered when all students were present (cf. Advanced Technology, 1983: 5-30 for survey findings that confirm teachers' views).

It is important to consider not only what students miss when they receive Chapter 1 lessons, but also the extent to which lesson content in Chapter 1 and regular classrooms is congruent. For example, Johnston et al. (1985) concluded that most compensatory education students received compensatory reading lessons that bore little relationship to the reading lessons in their regular classrooms. They also reported that school personnel made little effort to systematically coordinate lesson content across instructional programs. On the basis of this and other evidence, they concluded that students would be more successful in the regular instructional program if they received compensatory instruction that was more congruent with what was offered in the regular program.

To investigate these issues, this study observed students over the course of an entire school day, a procedure which allowed us to measure the amount of time allocated to Chapter 1 and regular lessons, and to chart the congruence of lessons across different programs. In addition, we used observations and interview data to address other relevant questions. For example, we were interested in understanding more about the problem of missed instruction. As the NIE (1976) study showed, only 40% of the teachers surveyed reported that Chapter 1 students missed some portion of their regular instruction. In this study, it was possible to analyze the extent to which school-level design decisions affected the problem of missed lessons. Moreover, the observation and interview data allowed an investigation of how teachers managed instruction so that the disruption of Chapter 1 instruction was minimized. Finally, the data were used to investigate how regular classroom teachers, Chapter 1 staff, and school administrators coordinated instructional programs and whether various

coordinative procedures resulted in lessons that were more or less congruent across programs.

FINDINGS

A massive amount of descriptive data was collected over the course of the study, including qualitative and quantitative data on schools, classrooms, and students. The approach to the analysis of data followed procedures developed in other multisite case studies (Miles and Huberman, 1984). Beginning on a case-by-case basis, and using a variety of data reduction forms, in-depth case studies of 12 schools were developed (Lee, Rowan, Allington, Anderson, Bossert, Harnischfeger, and Stallings, 1986). Analysis then proceeded to cross-site comparisons and the development of important generalizations. The findings from this analysis were described in the final report of the project (Rowan, Guthrie, Lee, and Guthrie, 1986).

This paper summarizes the major findings from the cross-site analysis in three general areas: (1) the quality of instruction received by Chapter 1 students in the sample; (2) the degree to which quality of instruction varied as a function of the design characteristics of schools, particularly the service delivery models in use; and (3) the relationship between Chapter 1 instruction and regular instructional programs.

Quality of Instruction

Basic descriptive data on the quality of Chapter 1 instruction at the 24 schools in the study are presented in Tables 1-3. The data have been aggregated to the school level, and schools have been grouped by service delivery model (for elementary school reading projects, elementary school math projects, and secondary school

Table 1: Characteristics of Chapter 1 Instruction: Elementary School Reading Projects

Service Delivery Model	School	# Service Days Observed	Schedule	Average mins/Service day	Estimated Weekly Time Mins.	Estimated Yearly† Time Hrs.	% Instructor Type in C1†† CT	RT	A	Average Group Size In C1	% in Formats††† Lec/Rec	Stwk	Mgmt	Surr
Mixed														
	Parker	9	2x-5x/wk**	30.7	26wk/62 10wk/155	52	0	1	99	5.9	42	38	7	13
	Westwood	14	5x/wk*	31.4	157	94	13	10	70	4.5	52	19	7	17
	Hayes	17	5x/wk*	42.1	210	126	3	71	27	3.9	67	24	4	1
Pullout														
	Kensington	18	5x/wk(9wks)	133.1	665	100	1	58	34	5.7	40	53	7	0
	St. Mary's	11	3x/wk	29.3	87	52	0	85	15	5.5	82	0	6	12
	Danville	14	4x/wk	50.1	200	120	7	73	20	6.6	65	18	6	10
	Central	15	5x/wk	32.2	160	96	1	39	60	5.2	79	10	6	5
	Hillside	15	4x/wk	46.5	188	113	10	64	26	4.1	35	8	15	41
	Johnson	15	4x/wk	30.9	124	74	1	75	24	6.5	78	14	6	0
	Winkler	14	5x/wk	28.4	140	84	0	67	33	3.1	59	39	2	0
	Tudor	4	5x/wk	25.6	130	78	3	97	0	3.8	12	44	10	34
In-class														
	Huxley	4	2.5x/wk*	25.5	65	39	13	0	87	3.6	65	10	24	0
	Nelson	17	5x/wk	28.7	145	87	0	6	94	3.0	44	41	6	0
	Sumner	9	4x/wk*	21.3	84	50	0	0	100	3.7	94	0	0	0
	Evergreen	10	5x/wk	21.5	110	66	30	0	70	6.8	54	35	0	0
	Lowell	11	5x/wk	41.2	205	123	0	3	97	4.3	56	34	7	3
Replacement														
	Washington	18	5x/wk	111.4	555	333	90	0	10	9.1	50	35	12	2

Legend: CT=Classroom Teacher; RT=Resource Teacher; A=Aide; Lec/Rec=Lecture/Recitation; Stwk=Seatwork; Mgmt=Management; Surr=Surrogate

†Yearly time=(Weekly time x 36 weeks) - 60 minutes

††Percentage may not equal 100 because Classroom Teacher & Aide and Other Instructor categories are not included

†††Percentage may not equal 100 because Testing and Other formats are not included

*Time variable--Schedule estimated from observational data

**Time variable--Estimate=26 weeks at 2x/wk and 10 weeks at 5x/wk

Table 2 Characteristics of Chapter 1 Instruction: Elementary School Math Projects

Service Delivery Model	School	# Service Days Observed	Schedule	Average mins/Service day	Estimated Weekly Time Mins.	Estimated Yearly† Time Hrs.	% Instructor Type in Cl†† CT	RT	A	Average Group Size In Cl	% in Formats††† Lec/Rec	Stwk	Mgmt	Surr
Mixed														
	Huxley	7	2x/wk*	27.6	56	34	26	28	46	6.5	53	4	2	22
	Parker	5	2x/wk*	16.0	36	22	0	45	55	13.5	16	25	11	30
	Westwood	8	3x/wk*	14.1	42	25	0	0	100	7.9	31	19	9	42
	Nelson	2	5x/wk	28.0	140	84	0	100	0	3.0	16	64	11	0
Pullout														
	Danville	2	4x/wk	60.5	244	146	22	78	0	4.2	36	37	1	7
	Central	6	2.5x/wk	22.8	58	35	3	5	92	5.1	76	0	24	0
	Hillside	7	4x/wk	43.3	172	103	0	100	0	3.8	25	13	16	41
	Johnson	9	4x/wk	40.2	160	96	22	30	48	5.0	54	31	7	0
	Winkler	13	5x/wk	24.8	125	75	3	36	58	1.6	62	12	5	17
	Tudor	13	5x/wk	38.4	192	115	0	100	0	3.9	7	92	1	0
In-class														
	Sumner	11	4x/wk	30.3	129	72	27	0	73	7.2	41	53	3	0
	Lowell	6	5x/wk	23.2	115	69	5	0	95	1.7	44	38	1	17
Replacement														
	Washington	17	5x/wk	25.1	125	75	96	0	4	9.4	26	59	11	0
	Evergreen	14	5x/wk	55.5	280	168	77	0	23	5.5	41	28	13	18

Legend: CT=Classroom Teacher; RT=Resource Teacher; A=Aide; Lec/Rec=Lecture/Recitation; Stwk=Seatwork; Mgmt=Management; Surr=Surrogate

†Yearly time=(Weekly time x 36 weeks) - 60 minutes

††Percentage may not equal 100 because Classroom Teacher & Aide and Other Instructor categories are not included

†††Percentage may not equal 100 because Testing and Other formats are not included

*Time variable--Schedule estimated from observational data

Table 3 Characteristics of Chapter 1 Instruction: Secondary School Reading and Math

Service Delivery Model	School	# Service Days Observed	Schedule	Average mins/Service day	Estimated Weekly Time Mins.	Estimated Yearly† Time Hrs.	% Instructor Type in C1†† CT	RT	A	Average Group Size In C1	% in Formats††† Lec/Rec	Stwk	Mgmt	Surr
Grade 8 Reading														
Pullout	Einstein	4	2x/wk	35.8	72	43	6	94	0	3.0	8	20	6	61
Pullout	Kehoe	12	2.5x/wk	40.8	103	62	0	82	8	2.9	17	65	8	7
Replacement	Lakeview	13	5x/wk	64.7	325	195	95	0	5	15.7	1	50	42	0
Replacement	Taylor	6	5x/wk	56.2	280	168	2	81	0	5.1	17	55	4	21
Grade 10 Reading														
Mixed	Salvador	5	1.5x/wk*	12.0	18	11	0	0	100	6.3	35	9	0	57
Replacement	Coolidge	16	5x/wk	29.3	145	87	2	96	0	4.3	9	47	10	30
Replacement	Stevenson	16	5x/wk	39.8	200	120	7	64	22	8.0	65	5	23	6
Grade 8 Math														
Pullout	Einstein	3	2x/wk	29.7	59	35	37	63	0	4.3	50	11	2	37
Replacement	Lakeview	14	5x/wk	36.6	185	111	93	0	7	11.8	3	55	41	0
Replacement	Taylor	15	5x/wk	57.3	285	171	0	91	7	12.6	51	42	7	0
Grade 10 Math														
Mixed	Salvador	5	2x/wk*	14.0	28	17	0	0	100	6.9	3	0	0	19

Legend: CT=Classroom Teacher; RT=Resource Teacher; A=Aide; Lec/Rec=Lecture/Recitation; Stwk=Seatwork; Mgmt=Management; Surr=Surrogate

†Yearly time=(Weekly time x 36 weeks) - 60 minutes

††Percentage may not equal 100 because Classroom Teacher & Aide and Other Instructor categories are not included

†††Percentage may not equal 100 because Testing and Other formats are not included

*Time variable--Schedule estimated from observational data

reading and math projects). The first column in each table lists the number of days Chapter 1 instruction in a particular subject was observed at a school. The second column lists the number of times per week students were scheduled to receive Chapter 1 instruction. In most schools this schedule was fixed, but in some schools with in-class designs, scheduling was variable and it was necessary to infer a schedule from the observed data. The next two columns combine the data on schedules with the data on service minutes to yield estimates of the weekly and yearly time the average Chapter 1 student at a school spent in Chapter 1 services.

In addition to data on the allocation of time, the tables include information on three other variables. One is the percentage of observed Chapter 1 instruction conducted by classroom teachers, resource teachers, or instructional aides. The next two variables are measures of instructional formats. The first is the average size of the instructional groups in which Chapter 1 students participated during Chapter 1 instruction; the second is the percentage of Chapter 1 instructional time that students spent in different instructional formats (these percentages may not total 100 since testing and other formats are not included in the table).

The data confirm that the characteristics of Chapter 1 instruction varied greatly across schools, even those using the same nominal service delivery model. Nevertheless, we begin by describing the modal patterns in the data. At the elementary level, in both reading and math, the modal pattern was to offer Chapter 1 instruction 4 to 5 times a week for 30 to 40 minutes per session. Across all schools, Chapter 1 lessons in reading in grades 2 and 4 averaged between 50% and 60% lecture/recitation, this study's measure of "direct"

instruction. Chapter 1 math lessons at this level provided somewhat less "direct" instruction, averaging between 35% and 45% lecture/-recitation across all schools. Finally, the one uniform characteristic of both Chapter 1 reading and math lessons at the elementary level was the small size of instructional groups. In both reading and math, Chapter 1 group sizes averaged from 5 to 7 students.

Fewer students and schools were observed at the secondary level, and variations across Chapter 1 projects were great, thus making generalizations more tenuous. The modal pattern was to offer Chapter 1 instruction in both reading and math 5 times per week, usually during a scheduled period of the school day. The length of this period varied across schools, depending on school schedules, but a period usually was between 40 and 50 minutes in length. With respect to the amount of "direct" instruction observed, a bimodal tendency emerged. In secondary schools that used self-paced, individualized curricula in reading, (e.g., Lakeview and Taylor), students often spent the vast majority of their Chapter 1 time in independent seatwork. In these schools, "direct" instructional formats, such as lecture/recitation, were observed only about 10% of the time or less. On the other hand, some secondary schools, such as Salvador, used a more conventional teaching technique which consisted of 30% to 40% lecture/ recitation, this study's measure of "direct" instruction. Finally, Chapter 1 group sizes in reading or math were above 10 students in some secondary schools, but across all secondary schools in the sample, Chapter 1 group sizes averaged between 6 and 7 students.

An interesting question is whether the instruction students received in Chapter 1 settings differed substantially from that received in regular classrooms. Table 4 presents data comparing lesson formats

Table 4 Percentage of Time Spent in Different Instructional Formats by Subject and Grade Level

Program	Total Hours Observed	% Lec/Rec	% Seatwork	% Surrogate	% Other	% Management	Average Group Size
READING FORMAT							
Grade 2							
Regular	140.4	50.6	34.6	1.5	4.2	9.1	16.6
Chapter 1	53.8	60.2	17.1	12.6	2.6	7.5	5.0
Grade 4							
Regular	122.2	41.9	42.5	1.1	4.2	10.2	19.5
Chapter 1	101.1	48.1	39.1	3.5	1.0	8.4	6.6
Grade 8							
Regular	18.9	35.7	38.3	8.7	6.9	10.4	13.4
Chapter 1	30.2	8.9	52.7	10.7	5.0	22.7	9.3
Grade 10							
Regular	30.4	42.8	24.7	13.3	1.4	17.7	17.5
Chapter 1	19.4	41.0	22.1	18.6	1.6	16.8	6.4
MATHEMATICS FORMAT							
Grade 2							
Regular	27.2	55.4	25.8	3.4	3.5	11.9	19.4
Chapter 1	23.8	42.4	26.6	15.1	7.9	8.0	6.5
Grade 4							
Regular	22.2	53.5	31.7	0.8	0.8	13.3	22.0
Chapter 1	28.6	34.4	42.3	11.1	2.3	9.9	5.6
Grade 8							
Regular	4.0	52.7	16.5	2.0	16.0	14.8	19.3
Chapter 1	27.2	31.7	48.9	--	0.2	17.2	5.6
Grade 10							
Regular	2.5	28.7	38.0	--	5.3	28.0	14.5
Chapter 1	1.1	2.9	--	18.8	78.3	--	6.9

and group sizes across the two programs for students in the sample. At the elementary level, the mix of instructional formats across the two program settings is roughly comparable, although Chapter 1 lessons appear to consist of roughly 10% more "direct" instruction and somewhat more surrogate (e.g., computer-assisted) instruction than regular classrooms. As discussed above, at the secondary level, the Chapter 1 projects at schools in the sample provided a bimodal distribution of instructional formats. In the schools with self-paced, individualized curricula in reading (Lakeview and Taylor), students were provided with much less "direct" instruction in Chapter 1 lessons than in regular lessons. At the tenth grade, only one school in the sample offered Chapter 1 instruction in math, and in this school, 78% of Chapter 1 instructional time was given over to testing. Apart from these schools, however, group-paced instructional formats were used to provide Chapter 1 instruction, and in these schools there was little difference in the amount of "direct" instruction across programs.

Table 4 does show a major difference between Chapter 1 and regular lessons, however. At both the elementary and secondary levels, and in both reading and math, Chapter 1 group sizes were much smaller than those in the regular program. Indeed, based on prior studies of class size, it seems safe to conclude that the average size of instructional groups in Chapter 1 settings represented an important advantage of Chapter 1 over regular classroom instruction. For example, across all schools in the sample (i.e., both elementary and secondary schools) instructional groups in regular reading/language arts had an average size of 17.6 students and Chapter 1 groups had an average size of 6.6 students. In math, regular classroom groups averaged 20.2 students and Chapter 1 groups averaged 7.7 students. In

fact, an examination of Tables 1-3 demonstrates that small group size was the most uniform characteristic of Chapter 1 instruction.

This finding is especially important and requires further interpretation. As meta-analyses have shown, the magnitude of reductions in group sizes between Chapter 1 and regular classrooms at schools in the sample were substantial enough to expect the reductions to positively affect student achievement. However, as these same meta-analyses demonstrate, group-size reductions have larger effects the longer the period of time in which students experience such reductions. As Tables 1-3 show, most of the Chapter 1 students in this study could be expected to receive less than 100 hours of Chapter 1 instruction over the course of a 36-week academic year. If students were to experience longer periods of Chapter 1 instruction, it seems reasonable to expect that any positive effects of the reduced group sizes purchased by Chapter 1 funds would be enhanced.

A final question investigated by this study was the extent to which Chapter 1 instruction offered students opportunities to practice "higher order" skills. In general, the narrative records from classroom observations showed that Chapter 1 reading and math projects did not focus on developing these kinds of skills. In math, Chapter 1 students in both elementary and secondary schools worked primarily on computational tasks involving basic arithmetic facts. Word problems were common, but they did not constitute the core of instruction, and little attempt was made to engage students in tasks that required the use of mathematical models to synthesize or evaluate ideas. In reading, the general pattern also was for Chapter 1 lessons to focus on lower-order tasks. With a few notable exceptions, students at all grade levels spent a good deal of time on worksheets that involved

little reading of connected text. The low level of the Chapter 1 curriculum undoubtedly served a useful purpose by providing students with useful review and practice of basic skills, especially at the lower grades, but as students entered upper elementary school and passed into secondary schools, the continuing focus on basic reading skills appeared particularly incongruent with the reading tasks demanded in regular classrooms. This is unfortunate, for in schools where Chapter 1 classes did provide direct instruction in reading comprehension, the narrative records indicated that many Chapter 1 students were capable of performing "higher order" tasks. Thus, the low level of Chapter 1 reading instruction often prevented local projects from presenting Chapter 1 students with challenging materials that extended and enriched learning.

Design Characteristics and Quality of Chapter 1 Instruction

As Tables 1-3 demonstrate, there was wide variation around the modal patterns of instruction discussed above. An important purpose of this study was to investigate the extent to which this variation could be accounted for by differences in instructional design features at the various schools in the sample. A basic finding emerged from this analysis. Contrary to the assumption of much of the policy literature in compensatory education, there was little evidence in this study that instructional quality varied as a result of the particular service delivery model used by a local Chapter 1 project. Instead, other design features appeared more important.

Consider the data on the effects of different service delivery models (e.g., pullout, in-class, replacement, add-on). Past research led us to be particularly interested in the question of whether

pullout programs offered "inferior" instructional services. At the elementary level, there was no indication of this. On the whole, pullout projects allocated about the same amount of time to Chapter 1 instruction, provided the same small group size, and were characterized by the same amount of "direct" instruction as projects with in-class and replacement designs. A similar pattern was evident at the secondary level.

Only the add-on designs observed at the elementary levels appeared to provide an advantage over alternative designs, and then only on one dimension of instructional quality: instructional time. In schools with pullout and in-class designs, it was common for Chapter 1 instruction to constitute roughly 30% to 40% of the total reading instruction received by Chapter 1 students. However, these delivery models rarely added more than 10 to 15 minutes to the daily time spent by students in reading and math, and this added time often came at the expense of other academic subjects. Since in schools with replacement projects, Chapter 1 instruction generally constituted 100% of the instruction received by students in reading or math, these projects added little or no time to students' instructional days and resulted in little or no redistribution of time across academic subjects. Thus, overall, it appeared that most Chapter 1 projects added no time to a student's instructional day and resulted in only a very modest redistribution of time across subjects. Only the add-on projects, which offered Chapter 1 instruction outside of the regular school schedule (before or after school), appeared to actually add instructional time in basic skills without taking time away from other subjects (see Rowan et al., 1986: Chapter 6 for a more detailed analysis of these findings).

Service delivery models also differed on another dimension: staffing patterns. However, this did not appear to markedly affect the quality of instruction received by Chapter 1 students, at least as measured by quantitative variables. For example, in-class projects in the sample were staffed almost exclusively by instructional aides, while pullout and replacement models were often staffed by a combination of resource teachers and aides. To examine whether there were differences in the type of instruction offered by various types of instructors, we compared the instructional formats of lessons taught by resource teachers and aides. The analysis revealed no consistent differences. In reading, aides provided 15% more "direct" instruction (lecture/recitation); in math aides provided about 5% less "direct" instruction. The narrative field records suggested that resource teachers generally provided well-organized lessons, used effective teaching practices, and kept students motivated and engaged in lessons. There were also many excellent instructors among the aides observed in this study; however, there also was more variation in quality across aides; a few aides presented confusing and wrong information to students or were unable to keep students motivated and engaged in lessons. On the whole, however, it did not appear that staffing patterns made a significant difference to the instruction received by Chapter 1 students.

The field records also were used to evaluate the criticism that pullout instruction wastes time for pulled-out students and disrupts ongoing instruction in the regular classroom. To examine this criticism, a comparison was made between five elementary schools where all observed Chapter 1 instruction was offered in a pullout setting with two elementary schools that used an in-class setting exclusively. In

the two in-class projects, transition times to and from Chapter 1 lessons averaged 2.28 minutes and 1.47 minutes. Of the five pullout projects, three had average transition times of about 3.5 minutes, one had an average time of 5.7 minutes, and the last had a transition time of 9 minutes. Clearly, the amount of time spent traveling to and from Chapter 1 services was less in the in-class projects, but only by one or two minutes in most cases. Transition times were lengthy only in schools where the Chapter 1 pullout rooms were at considerable distance from the regular classroom. Finally, the field records indicated that the movement of students into and out of classrooms was no more disruptive than movement within classrooms, and, in elementary schools especially, students seemed quite accustomed to the movement and regrouping of students.

Design decisions unrelated to the use of a particular service delivery model, such as the choice of curriculum, appeared to have important effects on quality of instruction in Chapter 1 programs. For example, schools used different curricula, and these to a great extent determined the content covered by students, especially the opportunity to practice "higher order" skills in reading and math. In fact, variables measuring content covered have been found to effect achievement in at least two previous studies of compensatory education: the Instructional Dimensions Study (Cooley and Leinhardt, 1980) and the Sustaining Effects Study (Carter, 1984).

In addition, the adoption of curricula designed for self-paced instruction through sequenced curriculum hierarchies appeared to have marked effects on the instructional treatments received by Chapter 1 students; in general, these types of curricula often resulted in a heavy reliance on student seatwork. As the Instructional Dimensions

Study (Cooley and Leinhardt, 1980) demonstrated, the use of individualized, sequenced curricula, in and of itself, does not appear to be related to student achievement. What is needed, apparently, is active instruction by teachers. In fact, such "direct" instruction was found by the Sustaining Effects Study (Carter, 1984) to be related to improved instructional outcomes.

Examples of Chapter 1 classrooms relying on individualized curriculum hierarchies and seatwork were particularly evident in the secondary schools in the sample. A particularly interesting case is Lakeview School (see the data in Table 3). At this school, in both reading and math classes, students entered a classroom with 12 to 15 other students and immediately began working independently on the individualized curriculum packets. Although aides circulated and monitored student seatwork, the majority of actual instruction was offered to students by the resource teacher, who sat at a desk near the front of the room and conducted "staccato" recitations with students. As Table 3 shows, students at this school received only 1% to 3% "direct" instruction. In addition, about 40% of student time was spent in management, as students waited for aides to check their assignments or for the resource teacher to meet with them. While this case is extreme, Table 3 shows that most of the secondary schools in the sample offered an individualized program which offered very little "direct" instruction to students. Such individualization was in all likelihood a convenient grouping strategy in the face of the wide variation in student achievement levels in secondary school Chapter 1 classrooms, but there is little evidence to support the efficacy of this approach.

The Relationship Between Chapter 1 and Regular Instruction

A final issue addressed by this study was the relationship between Chapter 1 and regular instruction. Previous research and policy analyses have been critical of the Chapter 1 program on several counts in this area. Some have argued that the program adds little instructional time to participating students' instruction and takes time away from instruction in other subjects; the program also has been criticized for providing instruction that is incongruent with that received in the regular classroom (Walberg, 1984; Johnston, et al., 1985).

The data on students' instructional days only partially confirmed the first criticism. As discussed above, Chapter 1 instruction in most schools occurred within the school day and thus added little time to a student's total daily instruction. At the same time, however, this pattern did not appear to cause students to miss large amounts of instruction in other academic subjects. An analysis of quantitative data suggested that, on average, students gained only about ten minutes of instruction in reading or math on a day when they received Chapter 1 services, and while this slight gain came at the expense of instruction in other academic subjects, it did not appear to result in a radical redistribution of learning time across academic subjects. Moreover, the qualitative data suggested an explanation for this finding. Most of the schools in the study scheduled Chapter 1 classes so that they would be minimally disruptive to students, and this usually involved offering Chapter 1 services while same-subject instruction was being offered in the regular classroom. The only exceptions to this general tendency were an extended pullout program in one elementary school, which pulled students out of their regular

classrooms for two hours in the afternoon during a nine-week period of the school year, and several secondary school replacement projects in which Chapter 1 instruction replaced various electives in students' academic programs. Thus, in most schools, participation in the Chapter 1 program had little effect on the amount of time students spent in different academic subjects (see Rowan et al., 1986: Chapter 6 for a discussion of these findings).

Despite this consistent scheduling pattern, there were important differences in the extent to which regular and Chapter 1 instructional programs were coordinated at sites in the study. In particular, the study found that the relationship between the content of lessons in the Chapter 1 and regular programs varied greatly across sites. In the final report of the study, a typology was developed to describe the relationship between the content of lesson assignments across programs in a school. In some schools, a "supportive" assignment pattern existed. In this pattern, Chapter 1 lesson assignments were explicitly designed to reinforce lesson content previously covered in the regular classroom. Other schools developed "alternative" assignment patterns in which Chapter 1 lessons bore little or no relationship to lessons in the regular program. Thus, the data in this study did not confirm a simple generalization about the lack of congruence between Chapter 1 and regular instruction. In fact, over half of the elementary schools in the sample, and 2 of the 7 secondary schools in the study, maintained a "supportive" assignment pattern that established congruent lesson content in the Chapter 1 and regular instructional programs (see Rowan et al., 1986: Chapter 8 for a discussion of these findings).

An important question is whether one type of assignment pattern is more effective than another in promoting student achievement. In this study, data on student success rates were used to provide insight into this question. An analysis of the narrative field records suggested that there was no simple relationship between assignment patterns and student success in lessons. For students who were performing near grade level, "supportive" Chapter 1 assignments which reinforced regular classroom instruction appeared effective in maintaining and promoting student success in the regular academic program. However, "alternative" assignment patterns appeared more appropriate for students who were performing well below grade level or who had instructional needs that were not addressed by regular curricula. Because these students usually required instruction that was far off the pace of that which occurred in the regular classroom, they usually did not experience much success during regular lessons and benefitted much more from the more appropriate instruction provided by the "alternative" assignments in the Chapter 1 program. Thus, for slowest students in a school, a Chapter 1 program that replaces grade-level instruction may be the most appropriate, while for students near grade level, "supportive" assignments in Chapter 1 can sustain grade-level performance. Despite the fact that no single assignment pattern appeared appropriate for all students, not a single Chapter 1 program in this study provided different assignment patterns to students with different instructional needs.

Finally, it was found that formal procedures for coordinating Chapter 1 and regular instruction were necessary but not sufficient to the integration of the two instructional programs within a school. Formal policies about curriculum and evaluation, formal organization

of school staff into teams or planning units that included Chapter 1 staff, and the formal scheduling of joint planning times for Chapter 1 and regular staff all facilitated coordination of Chapter 1 and regular instruction. However, schools that showed the tightest coupling between Chapter 1 and regular instruction were those in which staff endorsed a norm of collegiality and had developed shared beliefs about instruction.

CONCLUSIONS

A major purpose of this study was to review the evidence on the quality of instruction in a variety of Chapter 1 schools and to formulate some suggestions for improvement. The great variety in Chapter 1 "treatments" across schools makes generalizations about program improvement very difficult. However, there was one uniform characteristic of Chapter 1 instruction in the schools in this study. All of the Chapter 1 projects offered instruction in small groups. It makes sense to assume that the results of past large-scale evaluations of the Chapter 1 program have been influenced by this trend, and that participation in smaller-sized Chapter 1 instructional groups has given students in the Chapter 1 "treatment" a small advantage over students not participating in Chapter 1. At the same time, however, the small effects of the Chapter 1 program in "macro" evaluations makes sense in light of this finding. Since Chapter 1 instruction usually accounts for less than 100 hours of learning time over the course of an academic year, the effects of reduced group size on student achievement should not be large.

The study suggests another reason why past evaluations have found weak effects of program participation on student achievement.

In general, participation in Chapter 1 services had very little effect on the total amount of time students spent in reading and math lessons. This was especially true of many replacement projects, and it was also true of most pullout and in-class projects. Instead of adding to the amount of time students spent in reading and math lessons, schools simply redistributed a fixed amount of instructional time across programs. This process would not give Chapter 1 students who were "slow learners" any additional time to learn basic skills.

Apart from these general observations, however, it appears that Chapter 1 projects implemented instructional programs with very site-specific characteristics. This finding has a number of implications for how policymakers, researchers, and practitioners think about improving the program. The analyses reported here suggest:

* Policymakers and practitioners should recognize that improvement of the Chapter 1 program will occur on a site-by-site basis. Given the weak constraints of federal statutes and regulations and the variable implementation of project design features at local sites, it appears unlikely that sweeping reforms can effect uniform changes in local instructional programs.

* Policymakers and practitioners should recognize that the adoption of a particular service delivery model (e.g., pullout or in-class) is not the major consideration in thinking about how to improve Chapter 1 instruction. Other variables, such as the amount of "direct" instruction or the nature of the curriculum, are more likely to affect the quality of instruction received by students.

* Policymakers and practitioners should consider how time can better be used in Chapter 1 projects. Instead of redistributing the fixed amount of time in students' daily schedules across different

programs, Chapter 1 funds might better be used to purchase add-on services that increase the amount of time students spend in basic skills instruction. By placing Chapter 1 instruction outside the regular school day, these designs not only add to instructional time, but also prevent students from missing instruction in other academic subjects.

* Policymakers and practitioners need to give more careful attention to the curriculum linkage between Chapter 1 and regular instruction. The implementation of "supportive" or "alternative" lesson assignments should be done only after a careful assessment of whether or not students' needs can be met by the regular curriculum. When students' needs are unmet by the regular program, alternative instructional assignments may be required; when students can be maintained at grade level with minimal support, supportive assignments are appropriate.

* Chapter 1 projects at all levels should expose students to higher-order thinking skills, especially opportunities to read connected text and to apply mathematics to real world problems. Although the focus of Chapter 1 instruction on basic skills provides students with useful review and practice, as students become older this review does little to support student learning in the regular classroom curriculums.

* Chapter 1 projects in secondary schools should move away from self-paced instructional formats that rely on independent seatwork. Too often, secondary school Chapter 1 projects allowed the materials, rather than the instructor, to provide the instruction for Chapter 1 students.

The implementation of these suggestions has the potential to increase the scope and quality of Chapter 1 instruction and could allow local projects to better meet the special educational needs of the students served.

REFERENCES

Advanced Technology, Inc. (1983). Local operation of Title I, ESEA 1976-1982: A resource book. Reston, VA: Author.

Allington, R., Steutzel, H., Shake, M., & Lamarche, S. (in press). What is remedial reading? A descriptive study. Reading Research and Instruction.

Anderson, L.M., Brubaker, N.L., Alleman-Brooks, J., & Duffy, G.G. (1985). A qualitative study of seatwork in first grade classrooms. Elementary School Journal, 86, 123-140.

Archambault, F.X. (1986). Instructional setting: Key issue or bogus concern? Paper prepared for the National Institute of Education Conference on the Effects of Alternative Designs in Compensatory Education, Washington, D.C.

Averch, H.A., Carroll, S.J., Donaldson, T.S., Kiesling, H.J., & Pincus, J. (1972). How effective is schooling? A critical review and synthesis of research findings. Santa Monica: Rand Corporation.

Birman, B.F., Orland, M.E., Jung, R.K., Anson, R.J., Garcia, G.N., Moore, M.T., Funkhouser, J.E., Morrison, D.R., Turnbull, B.J., & Reisner, E.R. (1987). The Current Operation of the Chapter 1 Program. Washington, D.C: Office of Educational Research and Improvement, U.S. Department of Education.

Botel, M. (1978). Aspects of planning, organization, and management of selected reading programs. In National Institute of Education, Perspectives on the Instructional Dimensions Study. Washington, D.C.: Author.

Brophy, J. & Evertson, C. (1974). Process-product correlations in the Texas Teacher Effectiveness Study: Final Report. Austin, TX: Research and Development Center for Teacher Education.

Brophy, J. & Good, T. (1986). Teacher behavior and student achievement. In M.C. Wittrock (Ed.), Handbook of Research on Teaching (third edition). New York: Macmillan.

Brown, F. (1982). Improving schooling through Title I: A model for change. Education and Urban Society, 15, 125-142.

Cahen, L.S., Filby, N.N., McCutcheon, G., & Kyle, D.W. (1983). Class size and instruction. New York: Longman.

Carter, L.F. (1984). The sustaining effects study of compensatory education. Educational Researcher, 13, 4-13.

Cooley, W.W. & Leinhardt, G. (1980). The instructional dimensions study. Educational Evaluation and Policy Analysis, 2, 7-26.

Fisher, C.W., Berliner, D.C., Filby, N.N., Marliave, R., Cahen, L.S., & Dishaw, M.M. (1980). Teaching behaviors, academic learning time, and student achievement: An overview. In, C. Denham and A. Lieberman (Eds.), Time to Learn. Washington, D.C.: National Institute of Education.

Gaffney, M.J. (1986). Chapter 1: The choices for educators. Paper prepared for the National Institute of Education Conference on Effects of Alternative Designs in Compensatory Education, Washington, D.C.

Glass, G.V., Cahen, L.S., Smith, M.L., & Filby, N.N. (1982). School Class Size. Beverly Hills, CA: Sage.

Glass, G.V. & Smith, M.L. (1977). "Pullout" in compenatory education. Boulder, CO: University of Colorado Laboratory of Educational Research.

Good, T. (1978). The Missouri Mathematics Effectiveness Project. Columbia, MO: University of Missouri, School of Education.

Johnston, P., Allington, R., & Afflerbach, P. (1985). The congruence of classroom and remedial instruction. Elementary School Journal, 85, 465-477.

Kennedy, M.M., Birman, B.F., & Demaline, R.E. (1987). The effectiveness of Chapter 1 Services. Washington, D.C.: Office of Educational Research and Improvement, U.S. Department of Education.

Kennedy, M.M., Jung, R., & Orland, M. (1986). Poverty, achievement, and the distribution of compensatory education services. Washington, D.C.: Office of Educational Research and Improvement, U.S. Department of Education.

Kimbrough, J. & Hill, P.T. (1981). The aggregate effects of federal education programs. Santa Monica, CA: Rand Corporation.

Lee, G.V., Rowan, B., Allington, R.A., Anderson, L.W., Bossert, S.T., Harnischfeger, A., & Stallings, J.A. (1986). The management and delivery of instructional services to Chapter 1 students: Case studies of twelve schools. San Francisco, CA: Far West Laboratory for Educational Research and Development.

Miles, M.B., & Huberman, A.M. (1984). Qualitative data analysis: A sourcebook of new methods. Beverly Hills, CA: Sage.

National Institute of Education. (1976). Evaluating compensatory education: An interim report on the NIE Compensatory Education Study. Washington, D.C.: Author.

Office of Educational Research and Improvement. (In press). Final Report of the National Assessment of Chapter 1. Washington, D.C.: Author.

Peterson, P.L. (1986). Selecting students and services for compensatory education: Lessons from aptitude-treatment interaction research. Paper prepared for the National Institute of Education Conference on the Effects of Alternative Designs in Compensatory Education, Washington, D.C.

Rosenshine, B. (1983). Teaching functions in instructional programs. The Elementary School Journal, 83, 335-352.

Rowan, B., Guthrie, L.F., Lee, G.V., & Guthrie, G.P. (1986). The design and implementation of Chapter 1 instructional services: A study of 24 schools. San Francisco, CA: Far West Laboratory for Educational Research and Development.

Stallings, J.A. & Kaskowitz, D. (1974). Follow Through classroom observation evaluation 1972-1973. Menlo Park, CA: Stanford Research Institute.

Walberg, H.J. (1984). Federal (Chapter 1) educational spending and effects on poor children. Washington, D.C.: Learn, Inc.

Walberg, H.J. & Frederick, W.C. (1983). Instructional time and learning. In H. Mitzel (Ed.), Encyclopedia of Educational Research, Vol. 2. New York: Free Press.

Wilet, D.E. (1979). Evaluation by aggregation: Social and methodological biases. Educational Evaluation and Policy Analysis, 1, 41-45.